APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,176	07/29/2003	Venkateshwar Rao Pullela	49769	7655

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THE LAW OFFICE OF KIRK D. WILLIAMS
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EXAMINER
FARROKH, HASHEM

ART UNIT	PAPER NUMBER
2187	

DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/630,176	PULLELA ET AL.
	Examiner	Art Unit	
	Hashem Farrokh	2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*29 July 2003*</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>*1-25*</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>*1-4,7-11,14-16,19-22 and 25*</u> is/are rejected.

7)☒ Claim(s) <u>*5,6,12,13,17,18,23 and 24*</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>*29 July 2003*</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>*9/16/04-3/16/05*</u>.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

The instant application having application No. 10/630,176 has a total of 25 claims pending in the application; there are 4 independent claims and 21 dependent claims, all of which are ready for examination by the examiner.

INFORMATION CONCERNING IDS:

The information disclosure statements (IDSs) submitted on 9/16/04, 9/22/04, and 3/16/05 were considered by the Examiner. The submissions are in compliance with the provisions of 37 CFR 1.97.

As required by **M.P.E.P. 2001.06(b)** and **37 C.F.R. 1.98(d)**, since the instant application has been identified as a continuation application of an earlier filed application and is relied upon for an earlier filing date under **35 U.S.C. 120**, the examiner has reviewed the prior art cited in the earlier related application as required by **M.P.E.P. 707.05** and **904** and as stated in **M.P.E.P. 2001.06(b)**, no separate citation of the same prior art need be made by the applicants in the instant application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 15 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent

No. 6,339,539 B1 to Gibson et al. (hereinafter Gibson).

1.   In regard to claim 15, Gibson teaches:

"An associative memory comprising: a plurality of associative memory banks;" **(e.g., see**

column 7, lines 40-42; Fig. 4C). *For example sub-blocks 112 shown in Fig. 4C*

represents the plurality of memory banks recited in the claim.

"wherein each of said one or more associative memory banks includes a plurality of

entries;" **(e.g., see column 1, lines 41-42; Fig. 4C).** *For example, as shown in Fig. 4C,*

each sub-block or bank include a plurality of entries or words 120.

"and wherein each of the plurality of entries includes a force no-hit value field." **(e.g.,**

see column 5, lines 8-12; column 10, lines 55-56; Fig. 4C). *For example each word*

120 includes the valid bit 120a that is used to force a no-hit or a miss operation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and
the prior art are such that the subject matter as a whole would have been obvious at the time the
invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 7-11, 14, 19, 20-22, and 25 are rejected under 35 U.S.C. 103(a) as

being unpatentable over U.S. Patent No. 6,718,326 B2 to Uga et al. (hereinafter Uga) in

view of Gibson.

2.   *In regard to claim 1, Uga teaches:*

"A method for performing operations **(e.g., see column 1, lines 8-17)** for programming

one or more associative memories," **(e.g., see column 16, lines 63-66; Fig. 15).** *The*

search or lookup operation is performed for the data programmed or stored in content

addressable or associative memory.

"the method comprising:"

"identifying a specified policy map;" **(e.g., see column 2, lines 19-21; column 13, lines**

17-44; Fig. 5). *For example rule or policy tables represents the policy map recited in the*

claim.

"determining a set of entries based on the specified policy map;" **(e.g., see column 2,**

lines 34-52; Fig. 20). *For example the lookup table shown in Fig. 20 is searched based*

on the search key to determine the action that must be applied to the packet. However,

Uga does not expressly teach: "associating a force no-hit indication with one or more entries of the set of entries."

Gibson teaches: "and associating a force no-hit indication with one or more entries of the set of entries." **(e.g., see column 10, lines 55-56)** *for forcing a miss or no-hit in the corresponding match line.*

Disclosures by Gibson and Uga are analogous because both references teach methods of using associative memory or content addressable memory for lookup or search operation.

At the time of invention it would have been obvious to a person of ordinary skill in art to modify the packet classification search device and method taught by Uga to include the valid bit taught by Gibson.

The motivation for using valid bit as taught by column 5, lines 8-12 of Gibson is to either validate or invalidate the data, depending upon particular search being performed.

Therefore, it would have been obvious to combine disclosures by Gibson and Uga to obtain the invention as specified in the claim.

3.   *In regard to claims 2, 9 and 20, Uga teaches:*

"programming one or more associative memories with the set of entries." **(e.g., see column 16, lines 63-66; column 17, lines 29-33; Fig. 15).** *For example rule are stores as entries in the content addressable or associative memories.*

4.   *In regard to claims 3, 10 and 21, Gibson teaches:*

"programming a plurality of banks of an associative memory with the set of entries."

(e.g., see column 7, lines 40-43; Fig. 4C). *For example write or programming*

operation is performed in the sub-blocks or banks of content addressable or associative

memories.

5.   *In regard to claims 4, 11 and 22, Uga teaches:*

"associating a priority indication with each entry of the set of entries." **(e.g., see column**

2, lines 34-52; Fig. 20). *For example Fig. 20 shows each entry is associated with a*

priority indication (e.g., ACTION column).

6.   *In regard to claims 7, 14 and 25, Uga teaches:*

"wherein at least one of said one or more entries corresponds to a deny operation."

(e.g., see column 12, lines 2-3; element 14a in Fig. 3).

7.   *In regard to claim 8, Uga teaches:*

"An apparatus for programming one or more associative memories comprising:" **(e.g.,**

see column 16, lines 63-66; Fig. 15).

"means for identifying a specified policy map;" **(e.g., see column 2, lines 19-21;**

column 13, lines 17-44; Fig. 5).

"means for determining a set of entries based on the specified policy map;" **(e.g., see**

column 2, lines 34-52; Fig. 20). *However, Uga does not expressly teach:* "means for

associating a force no-hit indication with one or more entries of the set of entries."

Gibson teaches: "means for associating a force no-hit indication with one or more entries of the set of entries." **(e.g., see column 10, lines 55-56)** *for forcing a miss or no-hit in the corresponding match line. The motivation for combination of Gibson with Uga is based on the same rational given in rejection of the claim 1.*

8.   *In regard to claim 19, Uga teaches:*

"A computer-readable medium containing computer-executable instructions for performing steps for performing operations for programming one or more associative memories," **(e.g., see column 16, lines 63-66; Fig. 15).**

"said steps comprising:"

"identifying a specified policy map;" **(e.g., see column 2, lines 19-21; column 13, lines 17-44; Fig. 5).**

"determining a set of entries based on the specified policy map;" **(e.g., see column 2, lines 34-52; Fig. 20).**

"associating a force no-hit indication with one or more entries of the set of entries."

However, Uga does not expressly teach: "associating a force no-hit indication with one or more entries of the set of entries."

Gibson teaches: "associating a force no-hit indication with one or more entries of the set of entries." **(e.g., see column 10, lines 55-56)** *for forcing a miss or no-hit in the*

corresponding match line. The motivation for combination of Gibson with Uga is based

on the same rational given in rejection of the claim 1.

Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gibson

in view of Uga.

9.   In regard to claim 16, Gibson teaches all limitations included in claim 15 but does

not teach: "wherein each of the plurality of entries includes a priority indication field."

Uga teaches: "wherein each of the plurality of entries includes a priority indication field."

(e.g., see column 2, lines 34-52; last column in Fig. 20) for including a priority

indication to each table entry of content addressable memory.

Disclosures by Uga and Gibson are analogous because both references teach methods

of using associative memory or content addressable memory for lookup or search

operation.

At the time of invention it would have been obvious to a person of ordinary skill in art to

modify the content addressable memory taught by Gibson to include the priority

indication field taught by Uga.

The motivation for including the priority indication as taught by column 2, lines 10-14 of

Uga is to perform the priority control of packet transmission.

Therefore, it would have been obvious to combine disclosures by Uga and Gibson to

obtain the invention as specified in the claim.

ALLOWABLE SUBJECT MATTER

Claims 5-6, 12-13, 17-18, and 23-24 are objected to as being dependent upon rejected based claims, but would be allowable if rewritten in correct and independent form including all of the limitations of the base claim and any intervening claims.

1.   The primary reason for allowance of claims 5-6, 12-13, and 23-24 in instant application is the combination with the inclusion of following limitations: **associating a programmable priority level with each of the plurality of banks.**

2.   The primary reason for allowance of claims 17-18 in instant application is the combination with the inclusion of following limitations: **identifying a highest priority one of said associative memory entries based on the block highest priority matching entry of each of the plurality of associative memory banks and values of the priority indication fields associated with the for the block highest priority matching entry of each of the plurality of associative memory banks.**

: IMPORTANT NOTE :

I f the applicant should choose to rewrite the independent claims to include the limitations recited in either one of the claims, the applicant is encouraged to **amend the title of the invention** such that it is descriptive of the invention as claimed as required be sec. **606.01** of the **MPEP.** Furthermore, the **summary of invention** and the **abstract**

should be amended to bring them into harmony with the allowed claims as required by

*paragraph 2 of **sec. 1302.01** of the **MPEP**.*

As allowable subject matter has been indicated, applicant's response must either

comply with all formal requirements or specifically traverse each requirement not

*compiled with. See **37 C.F.R. § 1.111(b)** and **§ 707.07(a) of the M.P.E.P.***

Conclusion

The prior art made of record and not relied upon are as follows:

1.   U. S. Patent No. 6,944,709 B2 to Nataraj et al. describes Content addressable

memory with block-programmable mask write mode, word width and priority.

2.   U. S. Patent Publication No. 20020129198 B2 to Nataraj et al. describes Content

addressable memory device for policy-based router, has CAM block provided with

priority index table, to store priority of policy statements stored in CAM cells array.

3.   U. S. Patent No. 6,510,509 B1 to Chopra et al. describes Method and apparatus

for high-speed network rule processing.

Any inquiry concerning this communication should be directed to Hashem

Farrokh whose telephone number is (571) 272-4193. The examiner can normally be

*reached Monday-Friday from **8:00 AM to 5:00 PM.***

If attempt to reach the above noted Examiner by telephone are unsuccessful, the

examiner's supervisor, Mr. Donald A Sparks, can be reached on (571) 272-4201.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

application may be obtained from either private PAIR or Public PAIR. Status information

for unpublished application is available through Private PAIR only. For more information

about PAIR system, see http://pair-direct.uspto.gov. Should you have questions on

access to the Private PAIR system, contact the Electronic Business Center (EBS) at

866-217-9197 (toll-free).

HF
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2005-10-27

DONALD SPARKS
SUPERVISORY PATENT EXAMINER